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TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.
YOR999124US2

In Re Application of: **Miller et al.**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/622,279	07/18/2003	Harper, Kevin C.	46843	2666	4589

Invention: **NON-DISRUPTIVE RECONFIGURATION OF A PUBLISH/SUBSCRIBE SYSTEM**

COMMISSIONER FOR PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed on:
12/27/2005

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Dated: **February 27, 2006**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Miller et al.	Confirmation No.:	4589
Serial No.:	10/622,279	Group Art Unit:	2666
Filed:	07/18/2003	Examiner:	Harper, Kevin C.
Title:	NON-DISRUPTIVE RECONFIGURATION OF A PUBLISH/SUBSCRIBE SYSTEM		

CERTIFICATE OF MAILING

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Date of Signature: February 27, 2006.

To: Commissioner for Patents
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Dear Sir:

APPELLANTS' APPEAL BRIEF TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

This is an appeal under 37 C.F.R. §1.191 and §1.192 from a Final Rejection, mailed on September 23, 2005, of claims 1-14, 17-30 and 33-40, comprising all the claims finally rejected. A Notice of Appeal with a Request for One-Month Extension of Time was timely filed on December 22, 2005, and received in the U.S. Patent and Trademark Office on December 27, 2005, with an Appeal Brief due February 27, 2006. Therefore, this Brief is being timely filed. A

Transmittal of Appeal Brief is included herewith authorizing the Commissioner to charge the fee for filing this Appeal Brief in the amount of $500 as set forth in 37 C.F.R. §41.20(b)(2).

REAL PARTY IN INTEREST

International Business Machines Corporation, the sole assignee of the inventors' rights in this patent application, is the real party in interest.

RELATED APPEALS AND INTERFERENCES

To the knowledge of Appellants, Appellants' undersigned legal representative, or the assignee, there are no other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

STATUS OF CLAIMS

Claims 1-40 were originally presented in the subject continuing application. No claims were added or canceled during prosecution.

Claims 1-3, 6-10, 17-19, 22-26, 33-37, 39 and 40 stand rejected under 35 U.S.C. §103, as allegedly obvious over Bracho (U.S. Patent No. 5,870,605) in view of Gai et al. (U.S. Patent No. 6,535,491; hereinafter "Gai") and Vaman et al. (U.S. Patent No. 6,011,780; hereinafter "Vaman").

Claims 4 and 20 stand rejected under 35 U.S.C. §103, as allegedly obvious over Bracho in view of Gai and Vaman as applied to claims 3 or 19, and further in view of Takano et al. (U.S. Patent No. 5,600,630).

Claims 5, 11-14, 21, 27-30 and 38 stand rejected under 35 U.S.C. §103, as allegedly obvious over Bracho in view of Gai and Vaman as applied to claims 1, 8, 17, 24 or 36, and further in view of Moskowitz (U.S. Patent No. 5,428,606) and Shaffer et al. (U.S. Patent No. 6,236,642).

Claims 15, 16, 31 and 32 stand objected to as dependent on rejected base claims. However, the final Office Action indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the relevant base claim and any intervening claims.

Claims 1-14, 17-30 and 33-40 are herein being appealed.

STATUS OF AMENDMENTS

No amendments were filed subsequent to final rejection in the above-noted matter, only remarks.

SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 recites a method of reconfiguring publish/subscribe systems. FIG. 3 depicts one example of a publish/subscribe system 300. The system comprises routers 302 connected via links 303, publishers 304 and subscribers 306. The system also comprises special nodes 310 and a configuration manager 312. As described in numbered paragraph 0043, special nodes are nodes having special abilities, for example, the ability to sequence messages. FIG. 9 depicts one embodiment of the logic associated with processing a reconfiguration request. The method comprises initiating a reconfiguration of a publish/subscribe system; see numbered paragraph 0075. The method also comprises reconfiguring the publish/subscribe system (see numbered paragraphs 0076-0081 in conjunction with FIG. 9), wherein no messages of said

publish/subscribe system (see numbered paragraphs 0076-0081 in conjunction with FIG. 9), wherein no messages of the publish/subscribe system are lost during the reconfiguring (see, for example, numbered paragraph 0035, lines 3-4).

Claim 36 is a program product version of claim 1. The article of manufacture is generally described at numbered paragraph 00100, while one example of a publish/subscribe system 300 implementing the program embodied in the article of manufacture is shown in FIG. 3 and generally described at numbered paragraph 0047 of the specification. One example of a distributed network incorporating the invention is described with reference to FIG. 1 at numbered paragraphs 0036 – 0044. The Board is directed to the description above with respect to claim 1 for the function of the program.

Claim 40 recites at least one program storage device readable by a machine, tangibly embodying at least one program of instructions executable by the machine to perform a method of reconfiguring publish/subscribe systems. See., e.g., numbered paragraph 00101 of the specification. One example of a publish/subscribe system 300 implementing the program is shown in FIG. 3 and generally described at numbered paragraph 0047 of the specification. One example of a distributed network incorporating the invention is described with reference to FIG. 1 at numbered paragraphs 0036 – 0044. The Board is directed to the description above with respect to claim 1 for the function of the program.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The final Office Action rejected claims 1-3, 6-10, 17-19, 22-26, 33-37, 39 and 40 under 35 U.S.C. §103, as allegedly obvious over Bracho (U.S. Patent No. 5,870,605) in view of Gai et al. (U.S. Patent No. 6,535,491; hereinafter "Gai") and Vaman et al. (U.S. Patent No. 6,011,780; hereinafter "Vaman").

publish/subscribe system are lost during said reconfiguring (see, for example, numbered paragraph 0035, lines 3-4).

Claim 17 is a system claim version of claim 1 in means-plus-function form. The means for initiating a reconfiguration of the publish/subscribe system comprises, for example, configuration manager 312 and a special node 310 (see FIG. 3). A configuration manager is described at numbered paragraph 0051, and special nodes are nodes having special abilities, for example, the ability to sequence messages (see, e.g., numbered paragraph 0043). As noted in numbered paragraph 0075 describing the example of FIG. 9, the special node comprises a current table indicator (element 506, FIG. 5c; numbered paragraph 0061). The means for reconfiguring the publish/subscribe system comprises, for example, a switch message (FIG. 8A; numbered paragraph 0068) and a spanning tree (e.g., FIG. 2; numbered paragraphs 0044-0046 and 0076, lines 2-5). Each node in the spanning tree receiving the switch message comprises data structures in addition to the current table indicator, including an outbound table vector (508, FIG. 5D; numbered paragraph 0062). Data structures for the nodes are generally described at numbered paragraphs 0058-0065.

Claim 33 recites a system of reconfiguring publish/subscribe systems, e.g., publish/subscribe system 300 shown in FIG. 3 and generally described at numbered paragraph 0047 of the specification. One example of a distributed network incorporating the invention is described with reference to FIG. 1 at numbered paragraphs 0036 – 0044. The system comprises a configuration manager adapted to initiate a reconfiguration of a publish/subscribe system. A configuration manager 312 is shown in FIG. 3, and described at numbered paragraph 0051. In one example, the configuration manager takes the form of a centralized or distributed network system service responsible for maintaining information about the structure, function and status of a network system, including, e.g., the network topology, special nodes, quality of service offered to nodes, etc. The system also comprises one or more nodes (e.g., special node 400, FIG. 4, numbered paragraphs 0054-0056) of the publish/ subscribe system adapted to reconfigure the

The final Office Action also rejected claims 5, 11-14, 21, 27-30 and 38 under 35 U.S.C. §103, as allegedly obvious over Bracho in view of Gai and Vaman as applied to claims 1, 8, 17, 24 or 36, and further in view of Moskowitz (U.S. Patent No. 5,428,606) and Shaffer et al. (U.S. Patent No. 6,236,642).

ARGUMENT

Claim 1

The final Office Action admits that "Bracho in view of Gai does not explicitly disclose that no messages are lost during reconfiguration[.]" Instead, the final Office Action relies on Vaman for this aspect. More specifically, the final Office Action first cites to Vaman et al. at column 7, lines 1-5. However, this section of Vaman merely speaks to preventing resource failure. Appellants could find nothing in the cited section of Vaman regarding no messages being lost during reconfiguration.

The final Office Action also cites to Vaman at column 9, line 66 through column 10, line 1, which includes the phrase "lossless recovery of cells." However, a careful review of the rest of Vaman reveals that this is the only place the word "lossless" or similar is used. In fact, Appellants were unable to find anyplace in Vaman where the concept of lossless recovery of cells is explained. Thus, Applicant submits Vaman fails to provide any description of how to actually achieve lossless recovery of cells, such that one skilled in the art would not be able to practice the invention that is alleged to be made obvious by the cited combination of references. Appellants submit the mere mention of lossless recovery of cells, without a teaching as to how to accomplish the same, is simply not enough to obviate the present invention as embodied in claim 1.

The Advisory Action alleges that the teaching regarding "lossless recovery of cells" stems from the background section of Vaman at column 4, lines 3-8 and 12-14 (discussing Kakuma et

al., U.S. Patent No. 5,488,606); column 4, lines 31-33 (discussing Kondo et al., U.S. Patent No. 5,475,675); and column 6, lines 6-8 (discussing Omuro et al., U.S. Patent No. 5,241,534).

Appellants have carefully reviewed these references. However, Kakuma et al. is in a very narrow domain, namely, duplex ATM exchanges comprising an active (master) system and a backup (slave) system. The section mentions avoiding either loss or duplication of cells when switching over from active to backup, due to differences in the transmission delays in the two systems, by duplexing rather than synchronizing. Appellants submit, however, that such systems are very different from pub/sub systems; in short, Kakuma et al. is simply not relevant to reconfiguring pub/sub systems. Appellants submit there is no teaching, suggestion or incentive to move the concept of lossless switching to a back-up system in duplex ATM exchanges to reconfiguring a pub/sub system, much less how to accomplish the same.

Kondo et al. teaches keeping a current and a spare transmission line synchronized with respect to the ATM cells passing through them, by detecting empty cells, which contain no user data, on one and inserting them onto the other. This replication allows immediate (hot) switching from one transmission line to the other. Again, Appellants fail to see the relevance to pub/sub systems. Moreover, synchronization of cells in two transmission lines is simply different from reconfiguring (rerouting) a pub/sub system such that no messages are lost during the reconfiguration. Appellants submit that hot switching to a replicated line and rerouting to a new path are simply two different things.

Finally, Omuro et al. teaches a method to minimize out of order of delivery of cells when changing back from a rerouting (secondary) path to a primary path after a fault on the primary path is recovered (the assumption is that the rerouting path is longer than the primary path, so that the first cell(s) transmitted on the primary path after changing back to it will arrive at the destination after the last cell(s) transmitted on the rerouting path). There are two reasons why these teachings are not applicable. First, Omuro et al. depends on the difference in latency in the two paths being reasonably uniform. This is reasonable in a system of communicaton nodes

which are ATM switches and communication links which are telecommunications links, but it does not apply to a pub/sub-system, in which the communicatoin nodes are pub/sub servers and the communication links are arbitrary network connections which may be routed differently through the underlying network at different times. Second, Omuro et al. mitigates cell loss when switching back from a rerouting path to a primary path. It does not teach how to avoid cell loss when the original fault is detected and the switch from the primary path to the rerouting path must be made.

Therefore, Appellants submit that claim 1 cannot be made obvious over Bracho in view of Gai and Vaman.

Claims 3, 4, 6-8, 14, 17, 19, 20, 22-24, 30, 33-37, 39 and 40 stand or fall with claim 1.

Claim 2

Against claim 2, the final Office Action cites to Gai et al. at column 15, lines 1-2. However, the cited section of Gai et al. merely describes commands that reduce the age value used by switches in the network, resulting in a reduction in the time to detect a change. Appellants submit the cited section, and Gai et al. in general, fails to teach or suggest reconfiguring that is non-disruptive to a publish/subscribe system. This is true for several reasons.

First, Appellants submit that "non-disruptive" at a minimum implies the absence of disruption, as distinguished from a reduced disruption, where disruption is still present. Gai et al. does not teach eliminating the time to detect a change, but rather, reducing it. Thus, Appellants submit reducing the change-detection time cannot logically read on "non-disruptive." Second, Gai et al. never mentions publish/subscribe systems, which are a particular type of network utilizing muticast messaging (see the Background section of the present application). Third, Appellants submit that one skilled in the art would not understand "non-disruptive" in the

context of a publish/subscribe system to mean reducing change-detection time, but rather, not having to shut down publishers or subscribers during a reconfiguration.

Therefore, for all the reasons noted above, Appellants submit that claim 2 cannot be made obvious over Bracho in view of Gai et al. and Vaman et al.

Claim 18 stands or falls with claim 2.

Claim 5

Against claim 5, the final Office Action admits that "Bracho in view of Gai and Vaman and Moskowitz does not disclose preserving message order during system reconfiguration." Instead, the final Office Action cites to Shaffer et al. (U.S. Patent No. 6,236,642; hereinafter, "Shaffer") against this aspect of claim 5.

As an initial matter, Appellants submit that Shaffer is improperly cited against the present application as non-analogous art.

The determination that a reference is nonanalogous art involves two steps. *Heidelberger Druckmaschinen AG v. Hantscho Commercial Products Inc.*, 30 U.S.P.Q.2d 1377, 1379 (Fed. Cir. 1994); *In re Wood*, 599 F.2d 1032, 202 U.S.P.Q. 171, 174 (CCPA 1979). First, the reference is reviewed as to whether it is within the field of the Appellants' endeavor. Id. Second, if the reference is not in the field of endeavor, then a determination is made as to whether the reference is reasonably pertinent to the particular problem the inventor sought to solve. *Id.*

In determining what the field of endeavor is, courts have looked to the field of endeavor set out in a patent or patent application. See, e.g., *In re Wood and Eversole*, 202 U.S.P.Q. 171 (CCPA 1979).

In the present case, the technical field is set out in numbered paragraph 0007 as reconfiguring a routing network, and, in particular, non-disruptively reconfiguring a publish/subscribe system without losing or reordering messages of the system during the reconfiguration.

Appellants submit that Shaffer is a point-to-point system (cellular communications), and not a publish/subscribe system. Therefore, Appellants submit Shaffer is not within the field of endeavor of the present application.

Moving on to the second part of the test, it must be determined whether Shaffer is reasonably pertinent to the problem sought to be solved by the present invention. The problem is set out in numbered paragraphs 0010 and 0011 as how to handle changes of topology (reconfiguration) in a publish/subscribe system.

Appellants submit that Shaffer is not reasonably pertinent to the problem sought to be solved by the present invention. A reordering scheme for a point-to-point system (Shaffer) simply would not work after a reconfiguration in a publish/subscribe system. A publish/subscribe system differs from the point-to-point environment of Shaffer in at least two ways: (1) each published message may be sent to multiple subscribers, possibly a large number; and (2) each subscriber will receive a different subset of the stream, based upon the details of his subscription – e.g., a first subscriber might receive messages 2, 5, 7, and 9, while a second receives 4, 7, 8, and 10. A subscriber receiving message 10 without message 9 will not know whether message 9 was not received because it does not satisfy the subscription, or whether message 9 did satisfy the subscription, but was delayed because of taking a different path. The technical expression for the above is that the sequence number set for the received messages is "sparse" and not "dense". Therefore, delaying processing message 10 until message 9 arrives will not work, since message 9 may never arrive at a given subscriber. Requesting retransmission, as cited in Shaffer col. 5, lines 56-67, for non-real-time data, will not work, since

thousands of subscribers may flood the network with retransmission requests for a single publisher. Changing delay times, as discussed in Shafffer col. 6, lines 8-10, will not work because messages travel to multiple subscribers, not to a single subscriber, over a variety of paths exhibiting a variety and unpredictable number of delays. However useful Shaffer's invention may be for point-to-point packet telephony, the teachings regarding preserving message ordering do not carry over to the completely different environment of the present invention, namely a publish/subscribe system in the face of reconfigurations.

Thus, Appellants submit that Shaffer is not reasonably pertinent to the problem sought to be solved. Therefore, Appellants submit that Shaffer is non-analogous art.

For the same reasons that Shaffer is not reasonably pertinent, Appellants submit it also does not make claim 5 obvious, either alone or in combination with the other multiple references cited.

Claims 11, 21, 27 and 38 stand or fall with claim 5.

Claim 9

Claim 9 was not specifically addressed in the final Office Action. However, Gai et al. involves redundancy (e.g., column 7, lines 49-53) with a failover to the redundant path. Thus, there is no decision in Gai et al. as to whether the old path can be used in forwarding a message.

Therefore, Appellants submit that claim 9 cannot be made obvious over Bracho in view of Gai et al. and Vaman et al.

Claims 10, 25 and 26 stand or fall with claim 9.

Claim 12

Against claims 11-14, including claim 12, the final Office Action cites to Shaffer et al., alleging at numbered section 7 that Shaffer et al. teaches queuing and delaying (for a predetermined time period) reception of packets via a new routing path until packets from an old routing path are received. However, claim 12 recites the use of both a new and an old path to deliver multiple messages in order to a node. Even assuming for the sake of argument that Shaffer et al. teaches as alleged, the old and new paths are used in series, old path first, then new path, whereas claim 12 recites the use of both paths to deliver the messages in order (see claim 11 from which claim 12 depends). The focus in claim 12 is on message order, rather than path order. In addition, claim 12 does not recite a time period for the forwarding.

As a side issue, the final Office Action alleges meanings for "CS-message" and "SC-message," citing Bracho at column 5, lines 25-47. However, those terms are not actually used in Shaffer et al., and, in any case the meaning of the terms as used in the present application is given at, for example, numbered paragraph 0066 (messages between clients and special nodes).

Therefore, Appellants submit that claim 12 cannot be made obvious over Bracho in view of Gai et al. and Vaman et al. as applies to claims 1, 8, 17, 24 or 36, and in further view of Moskowitz and Shaffer et al.

Claim 28 stands or falls with claim 12.

Claim 13

Against claims 11-14, including claim 12, the final Office Action cites to Shaffer et al., alleging at numbered section 7 that Shaffer et al. teaches queuing and delaying (for a predetermined time period) reception of packets via a new routing path until packets from an old routing path are received. However, a careful review of the cited section (column 5, lines 47-55)

reveals that packets may be briefly held in a node buffer or memory unit, temporarily pausing packet transit. Claim 13 recites both a held queue and a delivery queue. Appellants submit there is no teaching or suggestion of a delivery queue.

Therefore, Appellants submit that claim 12 cannot be made obvious over Bracho in view of Gai et al. and Vaman et al. as applies to claims 1, 8, 17, 24 or 36, and in further view of Moskowitz and Shaffer et al.

Claim 29 stands or falls with claim 13.

In conclusion, Appellants submit that none of claims 1-14, 17-30 or 33-40 can be rendered obvious for at least the reasons noted above. Therefore, Appellants submit that the final Office Action should be reversed in all respects.

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CLAIMS APPENDIX

1. (Previously Presented) A method of reconfiguring publish/subscribe systems, said method comprising:

initiating a reconfiguration of a publish/subscribe system; and

reconfiguring said publish/subscribe system, wherein no messages of said publish/subscribe system are lost during said reconfiguring.

2. (Original) The method of claim 1, wherein said reconfiguring is non-disruptive to said publish/subscribe system.

3. (Original) The method of claim 1, wherein said reconfiguring comprises changing from a first routing path between one node of said publish/subscribe system and another node of said publish/subscribe system to a second routing path between said one node and said another node.

4. (Original) The method of claim 3, wherein said first path is designated in a first routing table and said second path is designated in a second routing table and wherein said changing comprises selecting said second routing table.

5. (Original) The method of claim 1, wherein said publish/subscribe system comprises an ordering requirement for delivery of one or more messages from at least one node to at least one other node of said publish/subscribe system, and wherein said reconfiguring preserves said ordering of delivery of said one or more messages.

6. (Original) The method of claim 1, wherein said initiating comprises forwarding a reconfiguration request from a configuration manager to one or more nodes of said publish/subscribe system.

7. (Original) The method of claim 1, wherein said reconfiguring comprises:

selecting a new routing path to be used in forwarding one or more messages within said publish/subscribe system; and

updating one or more data structures associated with one or more nodes of said publish/subscribe system to reflect said reconfiguring.

8. (Original) The method of claim 1, further comprising forwarding a message from at least one node of said publish/subscribe system to at least one other node of said publish/subscribe system, after said reconfiguration is initiated.

9. (Original) The method of claim 8, further comprising determining whether an old routing path or a new routing path is to be used in forwarding said message.

10. (Original) The method of claim 9, further comprising forwarding another message from at least one node of said publish/subscribe system to at least one other node of said publish/subscribe system, wherein said another message is forwarded using a different routing path than said message.

11. (Original) The method of claim 8, wherein said message comprises a CS-message, and wherein said method further comprises refraining from delivering said CS-message to a node of said publish/subscribe system, until after one or more other messages are at least ready for delivery to said node, such that ordering of delivery of said CS-message is preserved.

12. (Original) The method of claim 11, wherein said one or more other messages are forwarded to said node via an old routing path and said CS-message is forwarded to said node via a new routing path.

13. (Original) The method of claim 11, further comprising transferring said CS-message from a held queue to a delivery queue, such that said CS-message can be delivered, after an originating node of said CS-message has completed forwarding to said delivery queue any messages forwarded to said node via an old path.

14. (Original) The method of claim 8, wherein said message comprises an SC-message, and wherein said method further comprises refraining from delivering said SC-message to a node of said publish/subscribe system, when a new routing path is used for said SC-message, until a predefined event occurs.

15. (Original) The method of claim 14, wherein said predefined event comprises receipt of a switch message at said node.

16. (Original) The method of claim 15, further comprising transferring said SC-message from a held queue to a delivery queue, as a result of said receipt of said switch message, such that said SC-message can be delivered.

17. (Previously Presented) A system of reconfiguring publish/subscribe systems, said system comprising:

means for initiating a reconfiguration of a publish/subscribe system; and

means for reconfiguring said publish/subscribe system, wherein no messages of said publish/subscribe system are lost during the reconfiguring.

18. (Original) The system of claim 17, wherein the reconfiguring is non-disruptive to said publish/ subscribe system.

19. (Original) The system of claim 17, wherein said means for reconfiguring comprises means for changing from a first routing path between one node of said publish/subscribe system and another node of said publish/subscribe system to a second routing path between said one node and said another node.

20. (Original) The system of claim 19, wherein said first path is designated in a first routing table and said second path is designated in a second routing table and wherein said means for changing comprises means for selecting said second routing table.

21. (Original) The system of claim 17, wherein said publish/subscribe system comprises an ordering requirement for delivery of one or more messages from at least one node to at least one other node of said publish/subscribe system, and wherein said means for reconfiguring preserves said ordering of delivery of said one or more messages.

22. (Original) The system of claim 17, wherein said means for initiating comprises means for forwarding a reconfiguration request from a configuration manager to one or more nodes of said publish/subscribe system.

23. (Original) The system of claim 17, wherein said means for reconfiguring comprises:

means for selecting a new routing path to be used in forwarding one or more messages within said publish/subscribe system; and

means for updating one or more data structures associated with one or more nodes of said publish/subscribe system to reflect said reconfiguring.

24. (Original) The system of claim 17, further comprising means for forwarding a message from at least one node of said publish/subscribe system to at least one other node of said publish/subscribe system, after the reconfiguration is initiated.

25. (Original) The system of claim 24, further comprising means for determining whether an old routing path or a new routing path is to be used in forwarding said message.

26. (Original) The system of claim 25, further comprising means for forwarding another message from at least one node of said publish/subscribe system to at least one other node of said publish/subscribe system, wherein said another message is forwarded using a different routing path than said message.

27. (Original) The system of claim 24, wherein said message comprises a CS-message, and wherein said system further comprises means for refraining from delivering said CS-message to a node of said publish/subscribe system, until after one or more other messages are at least ready for delivery to said node, such that ordering of delivery of said CS-message is preserved.

28. (Original) The system of claim 27, wherein said one or more other messages are forwarded to said node via an old routing path and said CS-message is forwarded to said node via a new routing path.

29. (Original) The system of claim 27, further comprising means for transferring said CS-message from a held queue to a delivery queue, such that said CS-message can be delivered, after an originating node of said CS-message has completed forwarding to said delivery queue any messages forwarded to said node via an old path.

30. (Original) The system of claim 24, wherein said message comprises an SC-message, and wherein said system further comprises means for refraining from delivering said SC-message to a node of said publish/subscribe system, when a new routing path is used for said SC-message, until a predefined event occurs.

31. (Original) The system of claim 30, wherein said predefined event comprises receipt of a switch message at said node.

32. (Original) The system of claim 31, further comprising means for transferring said SC-message from a held queue to a delivery queue, as a result of said receipt of said switch message, such that said SC-message can be delivered.

33. (Previously Presented) A system of reconfiguring publish/subscribe systems, said system comprising:

a configuration manager adapted to initiate a reconfiguration of a publish/subscribe system; and

one or more nodes of said publish/ subscribe system adapted to reconfigure said publish/subscribe system, wherein no messages of said publish/subscribe system are lost during the reconfiguring.

34. (Original) The system of claim 33, wherein said configuration manager is adapted to forward a reconfiguration request to one or more nodes of said publish/subscribe system to initiate said reconfiguration.

35. (Original) The system of claim 33, further comprising at least one node of said publish/subscribe system adapted to forward a message to at least one other node of said publish/subscribe system, after said reconfiguration is initiated.

36. (Previously Presented) An article of manufacture, comprising:

at least one computer usable medium having computer readable program code means embodied therein for causing the reconfiguring of publish/subscribe systems, the computer readable program code means in said article of manufacture comprising:

computer readable program code means for causing a computer to initiate a reconfiguration of a publish/subscribe system; and

computer readable program code means for causing a computer to reconfigure said publish/subscribe system, wherein no messages of said publish/subscribe system are lost during the reconfiguring.

37. (Original) The article of manufacture of claim 36, wherein said computer readable program code means for causing a computer to reconfigure comprises computer readable program code means for causing a computer to change from a first routing path between one node of said publish/subscribe system and another node of said publish/subscribe system to a second routing path between said one node and said another node.

38. (Original) The article of manufacture of claim 36, wherein said publish/subscribe system comprises an ordering requirement for delivery of one or more messages from at least one node to at least one other node of said publish/subscribe system, and wherein said computer readable program code means for causing a computer to reconfigure preserves said ordering of delivery of said one or more messages.

39. (Original) The article of manufacture of claim 36, further comprising computer readable program code means for causing a computer to forward a message from at least one node of said publish/subscribe system to at least one other node of said publish/subscribe system, after said reconfiguration is initiated.

40. (Previously Presented) At least one program storage device readable by a machine, tangibly embodying at least one program of instructions executable by the machine to perform a method of reconfiguring publish/subscribe systems, said method comprising:

initiating a reconfiguration of a publish/subscribe system; and

reconfiguring said publish/subscribe system, wherein no messages of said publish/subscribe system are lost during said reconfiguring.

EVIDENCE APPENDIX

NONE

RELATED PROCEEDINGS APPENDIX

NONE